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April 12, 2006

Roger C. Westman, Ph.D.  
Allegheny County Health Department  
Department of Air Quality  
301 Thirty-ninth Street  
Pittsburgh, PA 15201

RECEIVED  
APR 15 2006  
Air Protection Division (3AP12)

Subject: 40 CFR 63 Subpart CCCCC (Coke MACT)  
Soaking Work Practice Plan

Dear Dr. Roger Westman:

I am enclosing the Soaking Work Practice Plan as required by 40 CFR 63 Subpart CCCCC (Coke MACT) Section 63.7327(d)(1) for United States Steel Corporation Clairton Coke Works.

Please refer questions on this matter to Ms. Coleen M. Davis at (412) 233-1015.

Very truly yours,

A handwritten signature in cursive script, appearing to read "Mark D. Whalen".

Mark D. Whalen  
General Manager, Mon Valley Works

cc: Judith Katz, EPA III

Enclosure

**United States Steel Corporation  
Clairton Works**

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**40 CFR 63 Subpart CCCCC  
National Emission Standards for Hazardous Air Pollutants  
For Coke Ovens: Pushing, Quenching and Battery Stacks**

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**Site-Specific Soaking Work Practice Plan**  
(63.7294 (a))

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**April 2006**

## **5.0 Scope**

This plan will address emissions that occur during soaking. Soaking starts when an oven is dampered off the collecting main and vented to the atmosphere through an open standpipe prior to pushing and ends when the coke begins to be pushed from the oven.

The Site-Specific Soaking Work Practice Plan applies to all Clairton batteries as follows:

- Battery 1 consisting of 64 3-meter ovens
- Battery 2 consisting of 64 3-meter ovens
- Battery 3 consisting of 64 3-meter ovens
- Battery 7 consisting of 64 3-meter ovens
- Battery 8 consisting of 64 3-meter ovens
- Battery 9 consisting of 64 3-meter ovens
- Battery 13 consisting of 61 3-meter ovens
- Battery 14 consisting of 61 3-meter ovens
- Battery 15 consisting of 61 3-meter ovens
- Battery 19 consisting of 87 4-meter ovens
- Battery 20 consisting of 87 4-meter ovens
- B Battery consisting of 75 6-meter ovens.

## **5.1 Training**

5.1.1 It will be the responsibility of the Area Manager, Coking Operations to ensure that all Qualified Persons performing the lidding function are trained in this procedure and their training is properly documented and recorded according to Clairton's Environmental Management System requirements. (63.7294(a)(1))

5.1.2 Corrective action is required during the soaking process any time emissions are visible from the standpipe opening.

## **5.2 Dampering Off (63.7294(a)(2))**

5.2.1 The Lidman (UP assigned to lids) will begin the dampering off process by closing the damper (lowering the damper arm) on the side opposite of the side that already has the damper closed.

5.2.2 If a damper has not been previously closed, close one damper without opening the cap and then proceed to the opposite side and close the other damper.

- 5.2.3 A "metallic clank" will be heard when the damper is properly closed. If the sound from closing the damper is muffled or dull in nature, open and close the damper several times to dislodge tar accumulation from the dish.
- 5.2.4 If opening and closing the damper dish several times does not allow a "metallic clank" sound to be obtained, open the valve to inject a small amount of steam.
- 5.2.5 Raise the cap.
- 5.2.6 Move to the other side of the oven (arm already down) and turn the valve to inject steam while observing the other standpipe opening. After a few seconds, quickly turn the valve to the off position to remove the steam. The steam will cause a slight "pop" which indicates air has been drawn into the standpipe and will ignite combustible gases / soaking emissions.
- 5.2.7 Wait a few seconds to allow the dish to re-fill with flushing liquor and raise the remaining cap. This will complete the isolation of the oven from the collector main.
- 5.2.8 If the damper dish will not close, turn the aspirating steam valve to inject a minimal amount of steam into the standpipe/gooseneck prior to opening the standpipe cap.
- 5.2.9 Report the inoperable damper dish to initiate a repair.
- 5.2.10 Observe each standpipe opening. If there is flame or no visible emissions, proceed to the next lidding function.
- 5.2.11 If the visible emissions do not automatically ignite, follow the corrective action steps in section 5.5.

### **5.3 Determine the Source of Soaking Emissions (63.7294(a)(3))**

- 5.3.1 Determine if the emissions are coming from the collector main;
  - 5.3.1.1 Can not hear a "metallic clank" when attempting to reseal the dish
  - 5.3.1.2 Emissions appear orange, brown or yellow and are eliminated when aspirating steam is turned on indicates that the emissions are coming from the collector main. This condition is commonly known as a "bleeder".
  - 5.3.1.3 Heaviest emissions coming from the top area of the gooseneck.
- 5.3.2 Determine if the emissions are coming from incomplete coking (green oven);
  - 5.3.2.1 The introduction of aspirating steam does not reduce the emissions.
  - 5.3.2.2 Emissions from incomplete coking will usually appear gray, black or dark green.
  - 5.3.2.3 To confirm that the emissions are coming from the oven, the #1 or #4 lid can be partially opened for observation of the coke mass.
  - 5.3.2.4 Emissions coming uniformly from the opening.
  - 5.3.3.5 If there are no soaking emissions when the oven is dampered off from the collecting main, soaking emissions may occur when the coke oven door is removed. This may result from an improper flushing pattern inside the gooseneck, which causes a small amount of flushing Liquor to penetrate the interior of the

standpipe, which will result in soaking emissions when the air is drafting up through the standpipe when the door is removed.

5.3.3.6 Emissions appear yellow or brown.

#### 5.4 Corrective measures to Reduce or Eliminate Soaking Emissions (63.7294(a)(4))

5.4.1 If the visible emission have not ignited automatically, follow the table below to reduce or minimize the emissions;

Root Cause	Corrective Action	Operation
Incomplete coking or "bleeder"	Ignite emissions	1) Briefly inject steam on opposite side. Close the standpipe cap opposite the one with emissions, partially raise the damper arm and inject a minimal amount of steam. After the emissions on the opposite side ignite, close the damper, turn off the steam and reopen the standpipe cap.
Incomplete coking or "bleeder"	Ignite emissions	2) Manually ignite emissions. Use sparking tool or other method to ignite the emissions
"Bleeder"	Address emissions	3) Turn on a minimal amount of steam. Turn off the steam after the charge is complete.
Incomplete coking	Address emissions	4) Put the standpipe cap into the down position. Lower the standpipe cap to cover the emissions and ensure that the emissions do not increase on the other side
Incomplete coking	Address emissions	5) Partially open / remove the lid closest to the standpipe. Notify others in the vicinity of the partially removed lid.
Incomplete coking	Address emissions	6) Bank oven or consider taking heat delay. See section below
Soaking emissions occur after door is removed	Correct flushing pattern inside gooseneck	1) Close standpipe cap to stop emission source from escaping coke oven 2) Replace coke oven doors for oven 3) Put aspirating steam in standpipe to check flushing spray pattern 4) Open damper for standpipe to be checked 5) Open standpipe cap and check flushing spray pattern, clean and adjust as needed, ensure that all of the Flushing Liquor is going into the collector main and no Flushing Liquor is going into standpipe 6) Bank Oven, notify Heaters

- 5.4.2 If the soaking emissions do not ignite by the methods 1-5 above,
  - 5.4.2.1 Bank the oven - Notify the shift manager, heaters, door machine and pusher machine operators immediately so that the doors are not removed. Put the caps down and the damper arms up to put the oven back on the main and continue coking. If the doors have been removed, the doors must be replaced before closing the caps and opening the dampers.
  - 5.4.2.2 Evaluate for heat delay - Notify the shift manager (or representative) and heaters to evaluate the need for a heat delay.  
63.7294(a)(5)
- 5.4.3 Further investigation and/or corrective actions may be necessary to ignite the soaking emissions or decide to not push the oven.
- 5.4.4 The shift manager will record the following on the "Oven Delays and Machine Repairs" report;
  - 5.4.4.1 "Banked oven - soaking emissions"
  - 5.4.4.2 "Heat delay - soaking emissions"
  - 5.4.4.3 "Damper dish problem" and oven designation